

2021 Virtual Genetics and Epigenetics Cross-Cutting Research Team Meeting Agenda

March 8-10, 2021

Webex and Slack

Welcome! The NIDA Genetics and Epigenetics Cross-Cutting Research Team (GEC CRT) is a multi-institute working group with members from the intramural and extramural program staff from NIDA, NIAAA and NIMH. The goal of the GEC CRT is to support the use of genetic and epigenetic tools to uncover new genetic, biochemical, and epigenetic pathways that contribute to substance use disorders. There is no registration. **Webex links for each day are located in the agenda. The attendee password is: GEC CRT21.**

Day 1	March 8, 2021	Password: GEC CRT21
Link:	https://nih.webex.com/nih/onstage/g.php?MTID=ea4943eef2b925a75ceeacf7b36534310	
10:45	Welcome! Dr. Nora Volkow, Director National Institute on Drug Abuse	
11:00 to 12:30	Session 1: Social Determinants of Health as Mediators of Phenotypes Relevant to SUD (Udi Ghitzza and Kerry Ressler, Session Chairs) Goals: Interactions among genetic/epigenetic factors and social determinants of health may in some cases be mediators of phenotypes relevant to substance use disorders (SUD) and concomitant mood disorders. Speakers will critically discuss recent research on interactions of life stress or related adverse consequences with genetic and epigenetic factors mediating vulnerability for, or resilience to, substance use disorders and co-occurring anxiety-related conditions.	
11:00	Kerry Ressler, PhD McLean Hospital, Harvard Medical School <i>Introductory talk providing background for later presentations and research on interactions between social stress and genetic factors mediating vulnerability for post-traumatic stress disorder</i>	
11:15	Christopher Guevara, Graduate Student Icahn School of Medicine at Mount Sinai <i>Genetic mutations which may contribute to synaptic plasticity in brain areas affecting resilience to social stress</i>	
11:30	Jean Lud Cadet, MD NIDA Intramural Research Program <i>Epigenetic and transcriptional consequences of compulsive methamphetamine taking and abstinence in the presence of adverse consequences</i>	
11:45	Shareefa Dalvie, PhD University of Cape Town, South Africa <i>Genomic influences on self-reported childhood maltreatment and their relation to co-occurrence of psychiatric disorders</i>	
12:00	Discussion	
12:30	Break	

- 1:00 Session 2: Emerging Methods to Identify Missing Heritability**
- 1:00 Randall J. Ellis, Graduate Student
Icahn School of Medicine at Mount Sinai
Genomic prediction of alcohol and opioid use disorders using machine learning
- 1:20 Seon-Kyeong Jang, Graduate Student
University of Minnesota
Rare variant heritability of tobacco use: Evidence from deep whole-genome sequencing of up to 26,000 individuals
- 1:40 Daniel Jacobson, PhD
Oak Ridge National Laboratory
Embracing Complexity: Supercomputing Enabled Systems Biology to Understand Complex Neurosystems
- 2:00 Slack Poster Sessions (drugabuse.slack.com)**
- 5:00 Adjourn**

Day 2	March 9, 2021	Password: GECRT21
Link:	https://nih.webex.com/nih/onstage/g.php?MTID=ef20bbcc69ac66938d988d067ff032d89	

- 10:45 AM Welcome and Summary**
- 11:00 to 12:30 Session 3: Novel Approaches for Target Discovery and Therapy for Substance Use Disorders (Jonathan Pollock, Session Chair)**
This session highlights genetic approaches to identify novel target and therapeutics for substance use disorders.
- 11:00 Rohan Palmer, PhD
Emory University
Using Inverse Transcriptomics to identify treatments for SUD
- 11:15 Brock Grill, PhD
The Scripps Research Institute
Genetic behavioral screen identifies an orphan anti-opioid system
- 11:30 Vivek Kumar, PhD
The Jackson Laboratories
Identifying potential drug targets from the KOMP mice
- 11:45 Michelle Hastings, PhD
Rosalind Franklin Medical University
Antisense approaches to the treatment of Disease
- 12:00 Discussion
- 12:30 Break**
- 1:00 Session 4: The Microbiome in Substance Use Disorders**
- 1:00 Christiann Gaines, Graduate Student
University of North Carolina, Chapel Hill
Assessing the impact of compositionally distinct gut microbiotas on differences in initial cocaine sensitivity in closely related inbred mouse substrains
- 1:20 Sierra Simpson, PhD
University of California, San Diego
Drugs, Bugs, and SUDs: Leveraging the Microbiome and Metabolome to Predict Addiction Liability
- 1:40 Drew Kiraly, MD, PhD

Icahn School of Medicine at Mount Sinai

Manipulations of gut microbiome diversity alter cocaine seeking behavior and striatal gene expression

2:00 Slack Poster Sessions (drugabuse.slack.com)

5:00 Adjourn

Day 3 March 10, 2021

Password: GECRT21

Link: <https://nih.webex.com/nih/onstage/g.php?MTID=ece26a4f78866bb6178c91673f0869ecb>

10:45 Welcome and Summary

11:00 to 12:30 Session 5: Beyond GWAS: Mobile DNA in Disease (Amy Lossie, Session Chair)

The purpose of this session is to introduce the SUD Genomics field to strategies that assess the parts of the genome that are typically not included in GWAS studies: transposable elements and structural variations.

11:00 Alex Urban, PhD

Stanford University

Analysis of Line1 elements and Structural Variants in the brain

11:15 Melissa Gymrek, PhD

University of California, San Diego

The Impact of Short Tandem Repeats on Gene Expression

11:30 Avi Nath, MD

National Institute of Neurological Disorders and Stroke Intramural Research Program

Regulation of stem cell function and neuronal differentiation by HERV-K via mTOR pathway

11:45 Sandhya Chandrasekaran, MSTP Student

Icahn School of Medicine at Mount Sinai

Cell-type specific chromatin configuration in the mammalian brain highlights a novel organizational architecture of an active class of mobile elements, the endogenous retroviruses, in neurons

12:00 Discussion

12:30 Break

1:00 Slack Poster Sessions (drugabuse.slack.com)

4:00 Session 6: The Interplay Between Substances of Abuse and Gene Regulation

4:00 Jimmy Olusakin, PhD

University of Maryland School of Medicine

Transcriptomic adaptations in emotional and sensory brain nuclei in perinatal fentanyl exposed rodents

4:20 Marta Pratelli, PhD

University of California, San Diego

Drugs of abuse drive activity producing changes in gene expression that switch neurotransmitters and behaviors

4:40 Jian Feng, PhD

Florida State University

Neuron-specific role of methylated DNA cytosine dioxygenase TET1 in cocaine addiction

5:00 Wrap Up and Adjourn